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ABSTRACT

Award winning projects in K-12 and college level economics are described in this publication. There are two major sections. Section I describes winning projects for 1979-80. A senior research seminar in economics offered undergraduate students a chance to build inexpensive, simplified forecasting models of the U.S. economy. Each student develops one sector of a macroeconomic model. These models are then used to forecast aggregate demand and supply, inflation, and monetary variables over the next four quarters. An introductory course entitled "Principles of Microeconomics" helped students understand how the price system works in the U.S. economy. In another project elementary and secondary teachers from Indiana attended a workshop on money, banking, and economic stabilization policies sponsored by a local bank. After the workshop each teacher was required to develop a curriculum unit and to participate in a 1-day internship experience at the sponsoring bank. Section one ends with very brief descriptions of some additional projects. Projects of previous winners are described in section two. Included is a college-level, problem-solving course in consumerism, a college course which uses role playing to teach economics, a macroeconomics development game, and a Federal Open Market Committee (FOMC) simulation. (RM)

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INNOVATIVE IDEAS IN INTRODUCTORY ECONOMICS

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A report developed by the Joint Council on Economic Education From the 1979–80 college and university level entries In the International Paper Company Foundation Awards Program for the Teaching of Economics.

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VOLUME 2

TO OUR READERS

The accounts published in this book are condensed versions of the original projects. Complete reports can be obtained from

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Foreword

A year ago, as an outgrowth of the National Awards Program for the Teaching of Economics, the Joint Council on Economic Education published *Innovative Ideas in Introductory Economics*. Comments and responses from the college and university level readers who received the experimental publication encouraged the continuation of the effort.

We are delighted with Volume 2 for several reasons. First, with it we bring to college and university instructors the winning projects submitted to the National Awards Program in 1980. Second, we include four of the college-level entries that were winners in previous years. Third, but most important, we take pleasure in providing recognition to college-level instructors who have concerned themselves with the teaching-learning process. Their creative ideas and innovative strategies can, in many cases, be adopted and adapted by their colleagues throughout the nation.

It is anticipated that *Innovative Ideas in Introductory Economics* will continue to give recognition to effective institutions of higher education, to promote the sharing and transfer of creative and innovative ideas, to encourage entries to the National Awards Program, and to enhance the expansion and improvement of economic education on our nation's campuses.

Support and funding for the Joint Council's National Awards Program is provided by the International Paper Company Foundation. We extend our appreciation to IPCF and its vice president, Sandra Kuntz, for aiding both the operations and publications of the National Awards Program.

Special thanks are extended to Andrew T. Nappi, dean of the College of Business, Illinois State University, who served as editor of the publication. Appreciation is also extended to Michael A. MacDowell, president, and Arthur L. Welsh, program director, of the JCEE for their counsel and assistance. Finally, we thank the judges of the college/university entries submitted to the National Awards Program—Myron L. Joseph, Henry H. Villard, and George L. Dawson—for their efforts in maintaining a program of high quality; their guidance makes up for the fact that this booklet has been exempted from the customary review by the Publications Committee of the JCEE.

Anthony F. Suglia
Director, Affiliated Councils and Centers Division
Coordinator, National Awards Program, JCEE

Editor's Introduction

Since the inception of the Joint Council's Awards Program for the Teaching of Economics, in 1962, winning projects developed by college and university teachers of economics and economic education were included in *Economic Education Experiences of Enterprising Teachers*, along with materials for kindergarten through twelfth grade. For the first time this year, college-level entries are being presented in a separate report, *Innovative Ideas in Introductory Economics*. This first volume contains brief descriptions of the prize-winning entries from the 1979 competition and four winning projects selected from past National Awards Programs.

The decision to produce a separate report for those in higher education underscores the commitment made by the Joint Council to improve economic understanding at all levels of instruction. The award-winning projects summarized here illustrate the creative and imaginative approaches developed by successful teachers. It is hoped that their example not only will stimulate college teachers to devise improvements in introductory economics but will encourage teachers to look to and participate in the Awards Program.

Several important questions concerning the college-level competition are frequently asked by prospective entrants: Is the Awards Program open only to professors of economics? How much emphasis is given by the judges to important economic principles, methods of instruction, learning activities, and any evaluations included in the project? Should the report describe a unit, lesson, or semester course? Is there a specific outline for writing the narrative section? How much detail and explanation of economic concepts and instructional techniques are required for the judges to know what the project was about? How much objective evidence of what was accomplished should be incorporated in the report? In short, what are the characteristics of a prize-winning entry?

The eligibility criteria seem to occasion the most confusion and need to be stated rather specifically: anyone teaching courses, units, or lessons in economics in a college or university is eligible to submit a description of his or her classroom experience. Contestants may include not only teachers of economics and economic education, but those teaching any other subject, such as English, science, mathematics, social studies, into which they have incorporated economic concepts. Also eligible are teams of college teachers from different fields of study, who have worked together to present a multidisciplinary approach to economics. The most significant criteria for

eligibility relate to what the teaching activity accomplishes in the classroom.*

Preparing the Application

In preparing an entry to the Awards Program, it is important to have a generalized outline in mind – almost any logical and descriptive outline will serve – before writing the narrative section of the report. The following are some of the characteristics of a good project description.

1. *Introduction.* This section of the narrative is intended to introduce the judges to what is to follow. It sets the stage, so to speak, for the rest of the project description. The introduction should be brief and should contain information about the overall purpose of the project. The institutional environment, class size, and other special characteristics or background information are usually described here.

2. *Overall goals and specific objectives.* Whereas the overall goals of the project can be given in a rather generalized statement written in narrative style, the instructional objectives should be very specific and are usually presented in list form. The overall goals may be thought of as long-range results. It is not necessary to prepare a long list of objectives. Instead, the objectives should be clearly stated and related to the teaching experience, and important economic principles should be defined.

3. *Program description.* Basically, the kinds of things reviewers want to learn from this section of the narrative are (a) what is to be done, (b) how it is to be done, and (c) who will do it. The procedures should be explained fully and in great detail. It can be a serious mistake to assume that the judges will understand the details of what, to the applicant, is a well-understood economic principle. The sequence of steps of the procedure should be presented in logical order. However, lengthy digressions, no matter how interesting to the writer, are to be avoided. Clarity implies conciseness. Where appropriate, assignment sheets along with sample lesson plans may be included in the report. However, it is not necessary to submit everything the students have done. A few examples – one or two typical instruction sheets or term papers, for instance – will do. This section should emphasize the economic concepts, materials, time schedule, start-up procedures, assignments given, activities or strategies used, and should describe how the project concluded.

4. *Program evaluation.* It is essential to show the reviewers objective evidence of what was accomplished by the project. Therefore, a section on

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evaluation should be included in the application. Some systematic method of providing evidence of the extent to which the instructional aims were achieved must be used, and it must be described in the narrative. Specifically, what methods or techniques were used to evaluate students' economic understanding? These generally include tests of all types (short-answer, essay, and performance examinations). Samples of testing instruments should be submitted with the reports, along with the results and analyses.

The editor hopes that this brief summary of what constitutes a good project will be useful to prospective applicants. He deeply appreciates the work of those teachers (nonwinners as well as winners) who are contributing so much to the improvement of economic understanding. It is hoped that more college teachers will enter the Awards Program, sharing their knowledge and experience with others for the common good as well as for the personal rewards.

The editor acknowledges with sincere thanks the cooperation of the teachers whose ideas appear in this volume. They have been most patient and understanding in permitting us to use their material and agreeing to our many editorial revisions. It must be remembered that the reports published in this book are condensed versions of the original projects and that some of the material cannot be presented or even summarized easily. The complete reports can be obtained from:

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Normal, IL 61761.

Andrew T. Nappi
Illinois State University

The Joint Council on Economic Education is pleased to offer awards of $7,500 each for innovative teaching programs that improve the ability of people to reason about economic problems and issues. Prizes are available for the best instructional plan directed at each of the following groups:

- Elementary/secondary school students
- College and university students
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Senior Research Seminar in Economics

William R. Bowman
United States Naval Academy, Annapolis, Maryland

The work of professional economists most often used by government officials and private business lies within the realm of macroeconomic forecasting. This "art," however, is rarely acquired by undergraduate students of economics, and as a result even economics majors often are unaware of what most professional economists do in the "real world." The lack of knowledge of macroeconomic forecasting is mainly the result of the expense of developing large-scale econometric models and of the high level of statistical knowledge presumed to be necessary in macroeconomic modeling.

In response to this situation, I have developed a section of the Senior Research Seminar in Economics which offers undergraduate students a chance to build inexpensive, simplified forecasting models of the U.S. economy. These models are based upon economic theories, or extensions of theories, learned in previous courses. They are derived with limited knowledge of few, but powerful, statistical techniques rarely encountered by undergraduates. As part of the exercise, each student develops one sector of a macroeconomic model. These models are then used to forecast aggregate demand and supply, inflation, and monetary variables over the next four quarters.

The forecast project does many things. It provides structure to a core curriculum, a synthesis of theory and application, and, most importantly, a rare experience in learning that combines economic logic and reasoning within a quantitative framework.

Objectives

A major objective of the research seminar is to have each student develop a sectoral model of the U.S. economy—one based firmly on economic theory. The model is then used to make short-run forecasts of aggregate demand and supply, inflation, and monetary variables. The course provides majors with an opportunity to synthesize previously learned economic principles and theories and to test these theories with quantitative research techniques common to the economics profession. The result is a unique and advanced statistical framework.

Course Design

Students must have taken intermediate theory and a statistics course before the research seminar. Neither calculus nor a course in econometrics is prerequisite. Economic theory, then, is the cornerstone of the major research paper developed by students in the project. When writing their papers, students first review basic intermediate macro theory and then more advanced theory. With a firm grasp of economic theory and a sense of how others have developed particular models, students then specify unique models of their own, based upon accepted economic theories. As an outcome of the course, students are taught to use mathematics and statistics in forming a structural framework for sound economic logic and reasoning.

There are three major resources used in the Senior Research Seminar: (1) computer software capable of analyzing time-series data; (2) quarterly time-series data on macroeconomic aggregate variables; and (3) instructor consultation with students.

I have found that for the simple macro models developed in class—ordinary least squares (OLS) and two-stage least squares (TSLS) equations—the Harvard-developed Time-Series Processor (TSP) program is more than adequate.

The TSP program may be purchased at a reasonable cost and can be designed for interactive or batch use. The user guide is extremely well written and documented, and students with little, if any, computer background find the building and executing of program and data files easy to master. No knowledge of FORTRAN or BASIC is required, and the job control language (JCL) is relatively simple with the TSP program.

In prior years I had students locate their own data but found the time and effort to have too high an opportunity cost for a one-semester course. As a result, I now have students use the Department of Commerce's Bureau of Economic Analysis data bank. This quarterly data base consists of nearly 750 variables, and transformations of the variables, that are available on a computer printout. As such, students merely have to go to a single, consistent, accurate data source and copy the relevant files into a mass storage file that may be accessed by TSP programs.

Finally, it must be emphasized that the instructor must act as a tutor for each student in the Research Seminar. (We limit the size of each section to fifteen students.) Limited direction is required in the initial literature search phase, but substantial time is required in directing the students through the statistical implementation of their models. Thus, the instructor should be versed in model building, time-series regression analyses, and forecasting techniques.

Operation of the Project

The senior research seminar paper completed by each student describes, analyzes, and forecasts a chosen aggregate economic variable that

would be a part of a large complex macroeconomic model. Accordingly, the research paper is composed of four major parts: (1) measurement of the variability of the economic aggregate; (2) discussion of economic theory behind the economic aggregate; (3) regression analysis of the economic aggregate; and (4) forecast of the economic aggregate. Each part of the research report is described below:

Measurement. This part of the paper explains the time-series variability of the economic aggregate. A simple plot of the variable with time is made and compared to the trend growth rate. Although most of the data is adjusted for seasonal factors, the students are instructed in the process of adjustment with the moving average approach.

The cyclical movement of the economic aggregate variable is then described by comparing the turning points of the variable to the turning points of an accepted measure of overall economic activity, as determined by the National Bureau of Economic Research. In addition, the leads and lags of the specific cycle are calculated for recent postwar cycles as well as the amplitude of the specific cycle. As background, students are taught the various theories of business cycles and learn the causal factors behind postwar cycles. Literature on the current stage of the business cycle is especially interesting to the student.

This part of the paper sets the stage for describing the time-series pattern of the economic aggregate variable which is explained in the second part of the paper. It is also useful for providing the student with a historical basis from which to alter his or her forecast in the last part of the paper. From the beginning, the students are made aware of the importance (and limitations) of well-informed judgments in even the most complex econometric macro models.

Economic theory. The second part of the paper forms the theoretical foundation for the quantitative model that follows. Students are expected to explain basic and more advanced theories of their selected economic aggregate variable.

Regression analysis. The methodology used for introducing the student to the "art" of regression analysis is basically one of learning by doing. The student is first given an introduction to regression analysis. The theory behind the statistical procedure is discussed only with regard to the assumptions one must make when using regression analysis. (Formulas are not proved since the student is considered a user.)

Computers make it easy for students to do regression analysis from the very beginning of the class. Simple time-series practice data files are created and stored. These files are accessed and analyzed with the TSP regression package. The control statements used to execute the practice programs are quickly and easily learned. Students may print out the sample data base in easily readable format, compute correlation matrices, and run preliminary regressions with simple control statements.

More advanced techniques made necessary by the problem of auto-

correlated error terms can also be taught to the student with the TSP package. Data transformations, such as discrete lags, logarithms, and first differences are easily computed. Their effects on autocorrelation are observed by comparing the model results, using transformed data with those of the preliminary regressions.

More advanced transformations, including the Cochran-Orcutt procedure and the Almon Polynomial Distributed Lag (PDL), are then presented and used. The latter transformations are usually considered beyond the undergraduate students; however the learning-by-doing approach makes their use both possible and highly instructive.

With the statistical knowledge acquired through doing regressions on the practice data files, the student then builds a simple regression model (Ordinary Least Squares [OLS] or Two-Stage Least Squares [TSLS] for a selected economic aggregate from a large macro model. The choice of explanatory variables is based upon economic theories discussed in the second part of the research paper. The quarterly data base used to analyze each student's model is the Department of Commerce's data bank used in its Bureau of Economic Analysis (BEA) quarterly model. It provides (at the time of this writing) the student with an exhaustive source of quarterly time-series information for the period of 1949:1 through 1979:3.

The student selects independent variables that are deemed appropriate for the theory he or she has developed previously and creates mass storage-data files for easy access. Much effort is then taken to derive a simple model whose explanatory variables have the expected sign and are statistically significant.

After numerous structural changes in the model, the student selects that model which most closely achieves two objectives. First, the model should have a high degree of explanatory power over the historical data period; second, its forecast errors should be minimized. The latter is diagnosed by dividing the historical data into a sample period and a forecast test period. The model is then used to generate fitted values of the dependent variable that may be compared with the actual values. The resulting error, and related error measures such as the root mean-squared error (RMSE) and the mean error as a percentage of the actual value, is calculated and described.

The forecast. Once the structure of the model is chosen, the student uses his or her best judgment of the values of the exogenous variables during the forecast period. This period is defined in the short run—for example, 1979:4 through 1980:4, to minimize forecast errors. These values are selected based upon expectations of professional economists and business leaders concerned with macroeconomic forecasting as reported in recent issues of numerous journals and magazines.

The student then plugs these expected values, or a range of values, into his model to produce "conditional *ex ante* forecasts." These forecasts may be altered if student expectations cast doubt upon the likelihood of the model's

results, i.e., the "judgmental forecasts." It is in this last phase that the student comes to appreciate the limits of computer-based modeling and the importance of personal, informed judgment, common to all large-scale forecasting models.

Summary

By the end of the semester, students have accomplished much in the Senior Research in Economics course. They have overcome their fear of the computer, they have synthesized the many theories of macroeconomics, they have acquired technical skills heretofore assumed to be beyond their ability, and they have learned much about what economists do in the public and private sectors. It is my belief that undergraduate curriculums would be better structured and strengthened if departments offered two senior seminars—one with a micro and the other a macro perspective—similar to the one described above.

The students, too, benefit indirectly from the senior research course that combines economic logic and reasoning within a quantitative framework. I have heard from prior students that their acceptance into top-rated graduate programs, as well as job offers with government agencies and private firms in the consulting and forecasting business, were, in large, due to their research paper.

A Modular Approach for Teaching Principles of Microeconomics

Gene R. Simonson
California State University, Long Beach, California

introduction

I taught the introductory course entitled "Principles of Microeconomics" during the fall semester of 1979 at California State University, Long Beach. The major goal of the project reported here is to help students understand how the price system works in the U.S. economy. At the start of

the course each student is given a study guide which divides the subject matter into seven teaching modules. Each module focuses on a specific economic theme or topic and identifies the key concepts, objectives, and learning activities to be developed. A variety of instructional strategies is employed to achieve the course objectives, including reading assignments from the textbook and other reference material, listening to cassette tape lectures, showing films, conducting small- and large-group discussions and using self-assessment problems and exercises to answer study questions.

The following specific objectives were incorporated into the project:

1. To recognize the principal characteristics of economic behavior and the basic features of the U.S. economy;
2. To understand why consumers buy more goods and services at lower prices, how they allocate their money income, what determines demand, and how demand affects the revenue of businesses;
3. To interpret how demand and supply conditions determine the market price of a product;
4. To identify what determines costs of production, what costs represent, and how costs influence the supply of goods and services in the market;
5. To recognize why a business firm maximizes profits by producing at the rate of output and selling at the corresponding price where marginal cost equals marginal revenue;
6. To discover how the demand for and the supply of productive resources determine the distribution of national income in the economy;
7. To evaluate the impact of international trade on the U.S. economy and on other nations of the world.

Course Design

To achieve the goal of understanding how the price system of our economy works, seven learning modules are developed in the project. Each emphasizes a central economic theme with specific concepts to be mastered. All together, there are thirty-five basic economic concepts and fifty-six teaching objectives presented in the course. Classroom activities and assignments are directed toward the objectives and concepts and enable students to evaluate their economic understanding. The modular approach, therefore, systematically identifies the content to be learned, indicates precisely what students must do to achieve succcess, and shows how well they have performed before proceeding to the next learning objective.

The teaching unit was organized around the following topics and concepts:

1. "Economics and the American Economy" was the first module presented in the course. The unit introduced students to many economic concepts such as limited resources, production, unlimited wants, self-interest, opportunity cost, and capitalism. The concepts were reinforced through self-assessment questions, cassette tape lectures, class discussions,

and selected readings from the textbook *University Economics*, written by A. A. Alchian and W. R. Allen.

2. "Consumer Demand" was used to teach economic concepts. The module enabled students to make decisions showing how they allocate their limited money income to purchase goods and services at different prices and how consumer demand affects the revenue of businesses. The students also learned how to construct a demand curve for an individual consumer.

3. The key concepts developed in "Demand, Supply, and Market Price" were market supply, production, price, profit maximization, income, and cost. In the review sessions the students were asked to demonstrate their understanding of the concepts by constructing a supply curve and applying what they had learned to new situations and problem-solving exercises.

4. The module "Production Costs and Supply" was used to teach topics such as fixed costs, variable costs, opportunity cost, technology, investment, and the marginal cost of producing a product. In this activity students were asked to explain the effects of rate of production and volume of production on costs and determine why costs rise in some industries as product demand increases.

5. "Theory of the Business Firm" was used to teach about competition, fiscal policy, the characteristics of a proprietorship, partnership, and corporation, and how a business firm attempts to maximize profit and minimize loss. At the end of the unit, students discussed the various forms of competition in which price-searchers engage and applied what they had learned to an understanding of antitrust legislation such as the Sherman Act and the Clayton Act.

6. In the module on "Income Distribution," the students discovered that the demand for scarce productive resources determined the distribution of income in the economy. Emphasis was on explaining the meaning of interest as it related to income and wealth. The economic concepts illustrated in the activities were diminishing returns, productivity, marginal product, income, rent, profit, monopoly, wage rates, employment, and inflation. Students were assigned readings from their textbook, which they were to complete before taking part in the activity.

7. "International Trade" was the last module presented in the project. The unit enabled the students to evaluate the effects of international trade on the U.S. economy. Among the economic ideas developed in the learning activities were investment, trade, economic growth, national income, exchange rate, comparative advantage, specialization, and balance of payments. A variety of teaching approaches were used for developing the concepts and their applications.

Operation of the Project

I began the course by showing the film *Adam Smith and the Wealth of Nations*, produced by the Liberty Fund. Before viewing the film, students

were presented with a list of study questions designed to stimulate interest and classroom discussion. The film and followup discussions also helped to give students some background information for the study of economics. Moreover, I usually opened each class meeting with a provocative question pertaining to a current economic issue which required an understanding of the concepts being covered in the lesson. For example, during our introductory discussion of "demand, supply, and market price" I brought into class a news item on the European Economic Community's (EEC) agricultural program, published in the Los Angeles *Times*. I read aloud a section which pointed out that the EEC had in storage 600,000 tons of butter. The students were anxious to know how such a "huge" surplus could develop. This question led to a discussion of what causes surpluses or shortages in the market. I constructed a demand and supply curve to explain how surpluses result when the product price is fixed by government above the market clearing price.

After the opener, I called for questions and attempted to give brief answers. Next, I introduced the module-lecture material which was essentially the same content covered on the cassette tapes. Overhead transparencies showing the module outline, including concepts, objectives, and learning activities, were presented and served to clarify the organization and scope of the unit. At the conclusion of each lecture I briefly summarized the economics content and called students' attention to the main ideas to be covered in the next class session.

With the study guide, text, and cassette tapes, each student has the educational materials and instructions required to proceed through the modules with confidence. Class time is used to review each module's material, demonstrate the relevancy of the content to current economic developments, answer questions, and administer tests.

Evaluation

Four economics classes taught in previous semesters were pre- and post-tested to validate the modular approach utilized in the fall semester 1979. The test used in each case consisted of fifty multiple-choice questions. On the basis of the test results, the students increased their economic understanding over the semester course: the pretest mean score for correct answers was 32.9 percent and the post-test mean score was 78.8 percent. Although attitudes are difficult to measure, the results of a survey showed that the majority of the students gave the instructor the highest possible rating.

EXHIBIT 1. Modules of Economics and Key Concepts

1. Economics and the American Economy
   A. The nature of human action
   B. Meaning of economics
   C. Basis of exchange
   D. Capitalism
   E. Functions of the economy and the price system
   F. National goals of the economy

2. Consumer Demand
   A. Demand and the demand curve
   B. Why demand curves slope downward
   C. Underlying determinants of demand
   D. Marginal revenue
   E. Price elasticity of demand
   F. Income elasticity of demand
   G. Consumer utility maximization

3. Demand, Supply, and Market Price
   A. Market supply
   B. Price-takers' market
   C. Price-searchers' market
   D. Market classifications

4. Production Costs and Supply
   A. Costs
   B. Supply
   C. Cost data of a hypothetical firm

5. Theory of the Business Firm
   A. The business firm and profits
   B. Price and production: price-takers' market
   C. Price and production: price-searchers' market
   D. Government policy and competition

6. Income Distribution
   A. Diminishing returns
   B. Demand for productive resources
   C. Incomes of productive resources
   D. Labor market and wages
   E. Rent and economic rent
   F. Interest and capital
   G. Optimum combination of productive resources

7. International Trade
   A. Dimensions of foreign trade
   B. Comparative advantage
   C. Foreign exchange rates
   D. Balance of payments
   E. The gold standard
   F. Commercial policies

Money, Banking, and Economic Stabilization Policies

Michael Watts and John Silvia
Indiana University—Purdue University at Indianapolis,
Indianapolis, Indiana

Overview

Forty teachers from around Indiana attended a workshop on Money, Banking, and Economic Stabilization Policies from June 23–27, 1980. Each teacher was sponsored by a local bank and received a tuition scholarship from the IUPUI Center for Economic Education and the Indiana Council for Economic Education. Sponsoring banks contributed $100 to support the program and established internship experiences for the teachers immediately following the workshop. In return, each bank received a copy of the teacher's curriculum unit on money, banking, and the economy developed in the course.

Our specific objectives were as follows:

- To improve teachers' understanding of money, banking, and monetary and fiscal policies;
- To develop curriculum units and resource aids for teaching economic concepts and principles presented in the workshop;
- To stimulate interest in the teaching of economics and economic education;
- To involve Indiana bankers and teachers in a cooperative effort to improve the teaching of economics in grades K–12;
- To provide advanced training and instruction in economics for teachers who had previously attended an economic education workshop;
- To strengthen the cooperative relationship between the Indiana Bankers Association and the Indiana Council for Economic Education.

Program Design

The workshop was designed to help teachers understand how the Federal Reserve system uses monetary policy to promote full employment and stable prices in the economy. Basic economic concepts relating to money, banking, and the economy were presented and discussed in group

sessions and then applied to current issues and problems facing the U.S. economy. The concepts and principles developed in each session were reinforced through field trips, guest speakers, written reports, and class activities.

The workshop was organized around the following topics and concepts:

Workshop overview. The first session was aimed at making everyone more comfortable by introducing the teachers and instructors to each other. The goals of economic education and the specific objectives of the workshop were discussed. The participants also were introduced to a variety of economic education materials and resource aids for classroom use. A supply of Federal Reserve booklets, bulletins, and reference sources, as well as commercially published curricula dealing with the study of economics, was distributed to the teachers.

Commercial banking. The key topics developed in this unit were money creation, financial markets, the money supply, deposit expansion, bank regulation, and monetary policy. A handout on bank charters was given to each teacher, which identified the sponsoring banks participating in the workshop and explained their governing policies. Our first guest speaker was a banker who discussed the topic "Commercial Banking, the Business of Banking" and demonstrated to the teachers a practicing banker's view of the banking industry. He introduced several economic concepts such as sources and uses of bank funds, liquidity and earnings, assets and liabilities, and real and nominal interest rates.

Noncommercial bank financial institutions. The presentation was made by a retired banker and economist. The major concepts developed were competition among financial institutions, mutual savings banks, and savings and loan associations, NOW accounts; dis-intermediation; and Regulation Q. The booklet *Non-Bank Financial Institutions*, prepared by the Federal Reserve Bank of Richmond, was used to teach basic economic concepts such as interest, capital, and the money supply. Throughout the workshop informal discussion sessions and films were used to develop a variety of knowledge and skills. As teachers and consumers of banking services, the participants were highly motivated to ask questions to increase their understanding of banking concepts and practices.

Private business in a monetary economy. This session examined how private corporations make financial and capital investment decisions and how these decisions are influenced by monetary policy. Our guest speaker, who came from a nationally-known manufacturing company, explained economic concepts such as debt/equity financing, cost of capital, and present value. His presentation led to a discussion of the Federal Reserve system and the role of the central bank in establishing monetary policy. A film *The Fed—Our Central Bank*, led to a discussion of central banking, policy targets, and policy tools. The participants learned about productive resources, scarcity, economic goals, inflation, and the importance of monetary policy.

Money, gold, and the international economy. The presentation by the speaker generated a lively discussion of the role of gold in international trade. Among the economic ideas covered in the unit were the gold standard, fixed and flexible exchange rates, the balance of payments, and Eurodollars. This was followed by an activity in which the teachers gained an understanding of the money supply, gross national product, interest rates, and inflation. The enthusiasm of the participants during the activities in our economic study of gold was overwhelming. Filmstrips, transparencies, charts, and research reports were also used to explain the value of money, aggregate demand and supply, national income, and economic growth. The activities helped teachers discover the importance of monetary policy in understanding the problems of unemployment and inflation. All parts of the workshop were used to teach basic economic concepts.

Monetary and fiscal policy. This activity was designed to examine the use of stabilization tools and the objectives of economic policy in the U.S. during the 1960s and 1970s. The major concepts discussed were expansionary and restrictive policies, policy lags, inflation, and economic growth. Articles from the *Wall Street Journal* and a film, *Anatomy of Inflation*, stimulated discussion and increased the teachers' knowledge and understanding of economic theory. A member of a bank investment committee reviewed monetary and fiscal policy in 1980. He explained U.S. economic policy goals and actions and presented an analysis of the impact of policy decisions on credit markets and consumers.

The Federal Reserve system. The role of the Federal Reserve in economic education was the focus of a session conducted by a member of the staff of the Federal Reserve Bank of Chicago. The objective was to present Federal Reserve materials and resources available to teachers for their use in the classroom. Among these were Federal Reserve booklets and films, a newsletter, *The Ledger*, and a tour of the Fed. By having a Fed representative address the workshop, the teachers came to see the Fed as a tangible, accessible community resource. The participants now know and recognize the contact person for their district.

Consumer credit. This session was presented by a speaker from the consumer finance association of the state of Indiana. The objective was to review the concepts and terminology of consumer credit and the rights of consumers in applying for and obtaining credit. Concepts covered included the annual percentage rate and truth-in-lending legislation. The film *To Your Credit* was shown, and handouts, including pamphlets on consumer credit, were used. The activity was, as expected, very lively and the discussion and questions were beneficial. The use of an expert in consumer credit was, in fact, absolutely necessary because questions in this session were often very specific and needed the clarification and understanding which only a person in the field, with day-to-day experience, could give.

Selective credit controls. A review of the theory and practical application of credit controls in the United States was offered. Concepts

covered were usury laws, credit channels, incentives, social costs, and federal credit agencies. Participants were very interested in this session because it included the "hot topics" of the Chrysler loan guarantee and the recent issuance of bonds by the Indiana Housing Authority. The economic impact and theory of credit controls were extensively discussed. For many teachers, the idea that "the money must come from somewhere" further developed the realization that there is no free lunch. The discussion of hidden financial and social costs of credit allocation sparked a good, healthy discussion of the Chrysler loan guarantee, with pro and con views taken up by the teachers themselves.

Present trends and future possibilities for money and banking. The objective of the banker who presented this unit was to offer a "crystal-ball" outlook of how banking and the consumer's use of banks may change in the future. Concepts covered included money-market certificates, floating-rate mortgages, service pricing, and electronic funds transfer. The viewpoint of a banker from a "typical" Indiana town and a medium-size bank was very effective. Most of the participants use this type of bank.

Summary

After the workshop each teacher was required to develop a curriculum unit and to participate in a one-day internship experience at the sponsoring bank. It was rewarding to see how much economic analysis was incorporated into the teaching units. The extensive use of important economic concepts and principles was easily apparent. The concepts of supply and demand for credit, financial institutions, economic goals, money, inflation, interest, capital, scarcity, and monetary policy were emphasized and developed in many lessons and units for grades K–12. Test results also indicated that the teachers increased their understanding of basic economics.

Good Ideas in Brief

DENNIS J. WEIDENAAR of *Purdue University, West Lafayette, Indiana*, developed a project to help students in the introductory course learn economics. The tutorial videotaped instruction (TVI) approach to teaching economics offered both the benefits of participating in a relatively small class and the advantages of hearing a well-prepared, carefully paced lesson.

The TVI approach is used in a class of thirty-five to forty students meeting three times a week for sixteen weeks, conducted by a teaching assistant. The teaching assistant begins each class by playing a thirty-minute videotaped lesson given by the course professor. It is not simply played without interruption, however. The teaching assistant frequently stops the tape when the professor, on the tape, asks a question. (The teaching assistant uses a "pause control," a relatively new feature on certain video-cassette players that allows the operator to freeze the picture without the trouble of rewinding.) The audience thereby has the opportunity to respond to the questions on the videotape and discuss the issues under the guidance of one teaching assistant. After the tape has been run, the teaching assistant uses any remaining time to answer questions, elaborate on concepts presented on the videotape, etc. The course coordinator, who is also the videotaped professor, meets weekly with the videotape teaching assistants.

LAWRENCE H. OFFICER and DANIEL H. SAKS of *Michigan State University, East Lansing, Michigan,* developed techniques to help students write an economics term paper. The project was started because the authors were disturbed by the lack of good undergraduate writing instruction for economists. They believed that the upper-level economics courses could be successful only if students learned to apply what they learned to problems they cared about. The strategy employed was to assign term papers, help students select topics that were of special interest, devote class time and extensive office hours to teaching how to produce such papers, and then to use the *M.S.U. Economist,* an undergraduate journal, as both an incentive and a model. The approach was developed for a highly heterogeneous group of students in courses on poverty, trade, public finance, and urban economics. An an outcome of the project, a written manual of economics term-paper writing techniques was developed for students and published by M.S.U.'s Business School under the title *So You Have to Write an Economics Term Paper.* The following techniques are discussed in the book: (1) selecting a feasible topic; (2) designing a reasonable research strategy; (3) carrying out research and analysis; and (4) writing up the results in a clear and careful form.

RICHARD L. LUCIER of *Denison University, Granville, Ohio,* developed a public-policy oriented course on financing public schools in Ohio, which was derived directly from research conducted while on sabbatical leave during the 1978–79 academic year. The project describes the investigator's work as a staff member of the Academy for Contemporary Problems and the development of a new course for upper-class economics majors. The seminar, "Financing Public Schools in Ohio," was taken by forty-six students and organized around four goals and learning outcomes: (1) increase students' knowledge of state and local government tax expenditure and school finance issues; (2) analyze and make policy recommenda-

tions regarding the school finance situation in Ohio; (3) compare students' recommendations with those of the Committee of Twenty and other analysts and observers; and (4) increase students' confidence and ability to use analytical techniques. An introductory unit in the seminar emphasized "discovery learning" and was used to create student interest. A topic on public-school finance and a section on tax and school finance issues in Ohio was discussed. Students developed the ability to analyze a current complex public-policy problem and formulate policy solutions.

The Consumer and Economic Change

A Problem-solving and Policy-oriented Course

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Introduction

Economics 90, a new course entitled "The Consumer and Economic Change," is not the traditional course in personal finance or consumer education, although some elements of those subjects are included. In a sense, this policy-oriented, problem-solving offering is a course in "consumerism," dealing more with applied economics and economic problems than with theoretical models. (A simple macro model and extensive application of supply and demand models are utilized, however.) The course goals are:

1. To improve student understanding of the process of economic change (e.g., the need for a data base, awareness of one's own value position, and a need for an implementation strategy);
2. To examine current economic problems within a broad, rational framework;
3. To experiment with an "adversary method" of course organization and classroom teaching;
4. To involve students in selected field projects on both a group and individual basis;
5. To focus on national goals, conflicts over national goals, values, and the role of evaluation;
6. To develop student understanding of the problem-solving process in general and the application of the problem-solving model to economic or consumer problems.

These were ambitious goals for an experimental course and they demanded a careful organization of classroom experiences, outside readings, student

Cleland's report is from *Economic Education Experiences of Enterprising Teachers* 9 (1970–71), pp. 78–82.

papers, and class projects. A cohesive structure that would achieve these diverse goals in a nonfragmented manner had to be provided.

Course Content

The class met three days a week, in two-hour blocks. A syllabus was prepared and duplicated for the students. This document presented the students with a simple problem-solving model in the form of a schematic diagram, set forth the goals of the course, briefly explained the approach that would be used, outlined the content, indicated the assignments, and listed various readings. Among the major topics were:

- The Consumer in American Society – A Macro Picture
- The Consumer in American Society – A Micro Picture
- What Is "Consumerism?"
- Consumer Protection – The Legal Basis
- Consumer Credit and Finance
- Consumer Information, Health, and Safety
- The Consumer as Polluter
- Promoting Economic Change

The weekly assignments included questions to be considered as well as specific readings. For example, questions relating to the study of the conflict of goals included the following:

1. What are the goals of American society? What should they be?
2. How should societies' economic goals be decided? How are they decided?
3. How important is the consumer in the U.S.? In the U.S.S.R.? In India?
4. Do we need more consumer freedom? More consumer justice? (And what is consumer justice?) More consumer power?
5. What role do consumers play in the total economy in terms of inflation? In terms of unemployment?
6. Are there trade-offs between goals?

The basic textbooks were works dealing with consumer economics or consumer problems, but the students were referred to introductory principles texts for relevant analytical concepts. For instance, they were told to refer to an introductory economics text for supply and demand models when considering the topic of the consumer and producer as "adversaries." Thus, the course dealt with the consumer as an organized decision unit in the total economy rather than with the consumer as one individual, as is done in the traditional consumer education course.

Approaches to Teaching the Course

A number of different teaching strategies were used, which can be briefly described as follows:

An adversary approach. Instead of trying to air all sides of a question myself, I relied upon outside speakers to be advocates for various viewpoints. Debates were not used, so that all speakers could develop their positions fully and without interruption. The students were expected to gain an understanding of all sides, to analyze the logic of each side, to evaluate the different positions, and sometimes to synthesize competing views or to be able to defend a particular position effectively. This demanded more of the student than would be the case in the straight lecture-discussion-reading course, where he simply takes notes on the instructor's lectures and feeds back information on tests.

Empirical research. The importance of empirical research and the collecting of data bases for dealing with consumer problems was emphasized. During the first class session the students received an extensive questionnaire designed to determine the assets and family income patterns of the students. The results were then compared with national data so that the students could see whether or not their opinions might reflect those of consumers in general. (They proved not to be typical of American consumers in general.) Later, as a class project, a community survey on the availability of phosphate-free detergents was made, and additional data were collected in connection with various group projects. These activities were designed to challenge the validity of student value positions by emphasizing the need for a data base.

Action orientation and field projects. Kalamazoo College is noted for its off-campus study programs, in which students get job experience for one term, study abroad, or do independent research projects. These off-campus experiences have been separate from classroom activities, however. In this course, the off-campus experiences were integrated with the classroom sessions, so that the community became a laboratory for us.

Problem solving. The problem-solving approach was employed in student efforts to bring about local economic changes. The students were forced to define and redefine problems, to go out and collect data, to develop an action plan, and finally to try to put their proposals into effect. The students made presentations to the county commissioners, the Kalamazoo city commissioners, a local newspaper, and the Chamber of Commerce. The course demonstrated that a well-planned action orientation, with adequate supporting data, can be an effective way of bringing about change within the system.

Professional role models. As explained under "An adversary approach," outside speakers served as advocates for various viewpoints. Outside speakers were also selected to serve as role models, thus showing the students that there are competent people working within the system and having an effect on that system. Among the men and women chosen were the chief economic adviser to the assistant attorney general for antitrust enforcement from Washington, D.C., a member of a law firm, the director of the Kalamazoo Consumer Information Council, a professor specializing in marketing, and the vice president of a bank.

Linkages. The course was not considered to be an independent entity but was linked to other courses in the curriculum, to the community, and to the high schools. Upton Sinclair's novel *The Jungle* was used to link the course to the past and to show that "Naderism" and the problems with which Nader deals were by no means new in American society. The group projects provided links with the community. The projects were to be written up in such a way that the teacher trainees could use them as teaching units in high schools. This provided the link with the high schools and with their education courses.

Senior project leaders. Senior students serving as project leaders were responsible not only for their own learning but for that of the underclassmen as well. They received no pay or extra credit for the additional work that this entailed, but positive working relationships were developed nevertheless. Thus, instead of leaning upon abstract conceptualization and expecting to be taught entirely by the instructor's lectures, the students were exposed to different styles of learning and had to take a more active role in their own instruction.

The various assignments were designed to make students think, to see all sides of issues. They forced students to recognize the value orientation underlying their own positions and to see that goals can conflict. Note the following questions, which were randomly selected from the assignment sheets.

- Make an economic case for regulating business and protecting the consumer. Make a social case. How compatible are the two cases? What criteria have you used for judging?
- Discuss the statement: "The U.S. economy would fall into a recession if we made consumer credit illegal."
- How much would you pay for cleaner air if it meant banning cars for selected people (e.g., students living at residential colleges or going to high schools where bus service is available)? What are the trade-offs?
- "Pollution control is a more pressing problem than unemployment, inflation, or social justice." Discuss this statement.
- How might a freeze on prices and wages affect the distribution of goods and services?

Teaching Materials Used

Some fifteen items were especially prepared for this course. Among these were the following:

Precourse questionnaire.. This six-page questionnaire was designed to determine the student's consumer status and to measure his existing knowledge of facts and concepts relating to consumer economics. The first part asked for information on sex, age, scholarship status, monthly allowance, value of wardrobe, value of personal library and record collection, and the approximate value of other goods commonly owned by

students. (Anonymity was promised, and students did not have to answer any question that troubled them.) They were also asked about the value of any stocks, bonds, or life insurance they might own, bank accounts, and charitable contributions. The second part elicited data on family income, home ownership, and other indices of consumer status. Part III was the knowledge test, in which the students were asked such questions as:

- What is a true rate of interest?
- What is a price index?
- What is discretionary income?
- How can a consumer affect economic change?

Glossary. A lengthy glossary was prepared and mimeographed, containing such terms as constant dollars, consumer price index, disposable personal income, implicit price deflator, imputed income, supernumerary income, transfer payments, and GNP.

Circular flow diagram. A circular flow diagram illustrating the national income accounts was drawn and mimeographed. This was used along with a flannel-board presentation of the same diagram to show the important role of the consumer in the macroeconomic sphere.

Data collection worksheet. The worksheet was prepared to aid the students in their field project, in which they collected data on phosphate detergents. They visited retail stores in Kalamazoo to collect data on prices and weights and to ascertain the phosphate content of all available detergents. The figures were entered on the worksheets, and the students could then make comparisons and determine unit prices. This was a trial run for the group projects to come later.

Other materials included lists of possible projects, an explanation of the steps in problem-solving, a "Learning Style Inventory" designed to help the student assess his own method of learning, forms for evaluating student projects, and a form of evaluating the course. About fifty questions were included in the course-evaluation form, asking the students to comment on such things as the extent to which the instructor was prepared for each class, how well the readings were integrated with class sessions, the relevance of the material, to what extent the course helped them analyze problems, and whether or not their personal attitudes and values changed.

Results

The course was well received, and it seemed to meet the goals that had been set forth. The course was the subject of articles in a local newspaper on two occasions. The students produced material that had immediate practical value. For example, one student prepared a teaching unit on consumer credit that can be used in high schools. This included a list of goals and objectives, suggested resources, teaching methods and activities, and the means by which the unit could be evaluated. One of the groups prepared a

lengthy report (thirty-three pages) on consumer resources in Kalamazoo. An individual student developed a model for solving community conflicts over the use of public goods, illustrated by a conflict between swimmers, boaters, and fishermen over the use of three small lakes in the area. The Chamber of Commerce requested copies of some of the materials the students had developed and commended students for presentations that they had made to the Consumer Information Council.

I believe that student skills in critical thinking and economic analysis were sharpened by this course. The course was especially effective in helping students recognize how their own value positions were often subtly intertwined with what they believed to be their objective and analytical conclusions. Their value positions were constantly challenged by the persistent demand for supporting data, forcing them to think through their value judgments more critically than they had ever done before. There was sufficient student involvement in real-world problems and intense interest not only in class but on the campus as well. I am sure that other teachers can successfully use the same basic syllabus and techniques that were developed for this experimental course.

Role Playing in Teaching Economics

Deepening Responsibility and Understanding at the University Level

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Introduction

Teaching basic economics can be a very frustrating experience, particularly if one's goal is to help students understand and formulate critical judgments concerning significant economic policy issues. For one thing, they arrive on the scene with many beliefs that they cling to with an unshakable faith. Even more important as a teaching problem is student indifference: a compound of "Why worry? Everything is fine the way it is" and "I couldn't do anything about it anyway." Students are reluctant to define issues in terms of broad social goals when they are so very much involved in trying to achieve their short-run personal ends.

Most students are extremely reluctant to apply the economic analysis taught in the classroom to problems of any complexity. When they are graduated they shed with ease the theory we labor so hard to teach, and all that remains is a smattering of half-remembered terms. Once back in the real world they know what is right without the aid of economics.

If we are to convince our students that economic analysis will help them understand their environment, we will have to aim for more than an intellectual understanding of the subject matter. Learning is not enough. Economics must be accepted by students before they will use it outside the classroom. If our teaching is to have any effect we must change strongly held beliefs and attitudes that may not be susceptible to reason alone. Student acceptance of economics may require more concern with persuasion and effective communication than most of us have shown. We must do

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NOTE: The substance of this report was presented at the December 1964 meeting of the American Economic Association. A fuller version was published in the *American Economic Review* for May 1965. (Professor Joseph has retired from Carnegie-Mellon.)

Joseph's report is from *Economic Education Experiences of Enterprising Teachers* 3 (1964–65), pp. 55–62.

more than demonstrate the cold, clear force of our logic in the traditional authoritarian pattern of handing down the truth from on high. We must experiment with new teaching techniques and take whatever steps we can to help economic learning survive beyond the end of the semester.

There are many ways to avoid the limitations inherent in the one-way communication pattern of the traditional lecture. The Socratic discussion technique, student projects, and debates all help to involve students in the learning process so that they become partners rather than antagonists of the instructor. There is a great deal of evidence that under some conditions learning and acceptance may be improved by active student participation induced by role playing or by other devices. The mediating mechanisms are not completely understood, but group cohesion, heightened attention, improved comprehension, and the emotional content of the experience are among the factors that may be involved.

I have tried to provide a number of participative learning experiences for students by placing them in role-playing situations. The teaching experiments I will describe were conducted over a number of years in elementary economics and labor economics classes. They appear to have had a stronger impact on my students than anything else I have done. The role-playing experiments heightened student interest and facilitated learning and acceptance of unfamiliar concepts. They provided a basis for repeated reinforcement as students referred back to their role-playing experiences when related subjects were discussed in class. The active student participation in the experiments helped to break down the barriers to effective student-teacher communication. The experiments were repeated this year by several of my colleagues, and their experiences paralleled my own.

Market Price Determination

Students have a very difficult time understanding the concept of a market price. There is no problem with the algebra or graphics, but students perceive a startling difference between the world as they know it and the economics text. Everyone knows that the seller sets the price for his product, so what sense does it make to assume that the competitive firm must accept the market price as given. The student can see that market price, as we define it, equates supply and demand and clears the market, in the rather special sense in which we use that phrase. But he finds it very difficult to translate the nicely intersecting curves into something that can be applied to the world outside the classroom. The result, in my experience, has been to make the student highly resistive to analysis that depends on market-determined prices. In an attempt to make market analysis more meaningful, I constructed a highly simplified market and gave the students a chance to participate in the determination of a market price. In preparation for the exercise, I made up buy and sell instructions that were based on demand and supply functions that intersected at a price of $1.80 per bushel (Table 1). The instructions were to "buy 1,000 bushels of wheat for not more than" or

to "sell 1,000 bushels of wheat for not less than" the specified price. At the $1.80 price twenty-four transactions were possible and eight buyers and eight sellers were excluded from the market by their instructions.

TABLE 1. Distribution of Buy and Sell Instructions

Price	Buyers (not more than the price)	Sellers (not less than the price)
$2.80	4	-
2.60	4	2
2.40	4	2
2.20	4	2
2.00	4	2
1.80	4	4
1.60	2	4
1.40	2	6
1.20	2	6
1.00	2	4

Two classes were brought together in a room in which all seats had been pushed to the walls. One class was designated as buyers and the other as sellers, and the following instructions were distributed:

> You are about to participate in the operation of a commodity market. You will be given an order to buy or sell 1,000 bushels of wheat under certain conditions. In general you should not reveal your instructions to any of the other dealers, unless you have a particular reason for doing so. You should consider yourself to be an agent, acting in behalf of a client who has given you specific instructions. You have an obligation to do as well as you can for your client, and you are not permitted to violate the instructions.
>
> When the market opens, at the signal of the instructor, you may proceed to carry out your order. Buyers will be identified by handkerchiefs on their left arms. A transaction is completed when a single buyer and a single seller agree on the terms of a sale. As soon as you complete a transaction, report to the instructor so that he may record and report your transaction. As soon as your transaction is reported, you should turn in your buy or sell order and receive a new one of the same kind. You may proceed immediately to complete a new transaction in accordance with your new order. If you are unable to complete a transaction within ten minutes, you may obtain a new order from your instructor.
>
> When the market is closed, the instructor will determine and report whether the buyers or sellers have represented their clients more successfully.

When the students had a chance to make sure they understood the in-

structions, the market was started. They were free to circulate in the class and make purchases or sales at any time, as long as the transactions were consistent with their buy and sell orders. As soon as a sale was reported, the instructor recorded it on the blackboard and announced it to the class. The student then turned in the order to the other instructor and received a replacement.

A few of the buy and sell instructions were left over at the beginning of the market, and they were given out as transactions took place and instructions were turned in. In the process of redistribution the orders were shuffled so that the students could not know when they received a new order in what transaction it had been used previously. The process maintained a fairly constant set of market conditions over the market period, although there were undoubtedly some shifts caused by the lag in reporting and feeding orders back into the market.

A record of one of these experiments is reproduced in Table 2.

Table 2. Distribution of Transactions

Price	No. of Transactions	Price	No. of Transactions
$2.60	1	1.70	20
2.50	0	1.60	16
2.40	1	1.50	13
2.30	0	1.40	5
2.20	6	1.30	1
2.10	1	1.20	3
2.00	15	1.10	1
1.90	25	1.00	1
1.80	27		

After an initial scattering of transactions, prices tended to move quickly toward the theoretical equilibrium. By the time the period was over, almost all transactions were at or very near to the equilibrium price. In subsequent experiments we recorded the transactions for each ten-minute period on a separate section of the board. The students were then able to observe the changing distribution of prices over time. My impression is that this technique speeded the concentration toward the equilibrium price.

One surprising aspect of an experiment of this type is how seriously the students took their roles. They bargained vigorously and were very anxious to learn which class had best represented their "clients" when the market was closed. We were forced to permit anyone who was unable to complete a transaction within ten minutes to obtain a new order, because we discovered in one of the early experiments that frustrated students, whose instructions effectively excluded them from the market, finally ignored their buy and sell orders in order to participate actively.

When the market was completed, students were asked to report at the next class meeting on the differences between their market and the competitive market discussed in the text. The follow-up discussions demonstrated that they had been impressed by the coercive forces of the market on the individual participants. They had learned, through their own experience, how supply and demand determine market price. With this background they were able to assess the significance of such factors as information, factor mobility, and product homogeneity on the market process.

The experiment made a strong impression on the students, and they referred back to their market experience throughout the semester. It helped them to understand the role of market forces in determining price and production, and to comprehend the competitive firm's inability to deviate from the market price. The acceptance of these concepts as something more significant than an intellectual exercise provided a valuable base for the comparison of competitive markets with alternative market structures and for related policy discussions. These are, of course, my subjective evaluations of the experience, since we did not run a controlled experiment. However, I am convinced that students who participated in these markets will remember the experience and the major ideas that were developed from them long after the analysis that was taught more traditionally has ceased to have any real meaning.

Oligopoly Pricing

The pricing problems of large firms are remote from the experience of the undergraduate students. We designed a role-playing situation that let them experience the instability of an oligopoly and the pricing problems faced by a firm with a small number of large competitors. Through participation they learned of the strong temptation to cut prices when fixed costs are high, and they learned of the impact of price competition on oligopoly profits. They were able to feel the pressure to collude.

As background for the experiment, we described an industry with three identical firms competing for the market. The demand for the product was assumed to be relatively inelastic, and the marginal production cost was assumed to be low relative to the prevailing price and constant. We explained that firms could choose to sell at a high (H) price of $4 or at a low (L) price of $3. Under these assumptions the class estimated the distribution of sales among the firms for each combination of high and low prices. Then, using an explicit cost function (costs = $65 + sales × $1), they calculated the profit that would result from each price pattern. The sales and profits alternatives for all combinations of high and low prices are presented in Table 3.

A simplified table showing only the profit alternatives for different price combinations was placed on the board. The class was arranged in groups of three, each student representing a single firm. They were asked to study the profit possibilities and to try to make as much money as possible

TABLE 3. Sales and Profits for Combinations of High (H = $4) and Low (L = $3) Unit Prices (costs = $65 + sales × $1)

Price Combinations	Firm 1			Firm 2			Firm 3		
	Price	Sales Units	Profit	Price	Sales Units	Profits	Price	Sales Units	Profit
HHH	H	30	$25	H	30	$25	H	30	$25
HHL	H	10	—35	H	10	—35	L	80	95
HLL	H	5	—50	L	50	35	L	50	35
LLL	L	35	5	L	35	5	L	35	5

for their respective firms through a series of fifteen or twenty price-setting (high or low) decisions. The instructor promised to identify the most successful business operator in the class at the end of the experiment. The students in each group were instructed to make their price decisions independently and without any communication. After each of the three had selected and noted a price, they were told to reveal the decisions to each other and to record the profits they had earned as indicated by the table on the board. This procedure was repeated until the experiment was concluded.

One-third of the groups was asked to set the initial price for all firms at the high level, one-third at the low level, and one-third was not given any binding initial conditions. The predominant result was that all three firms were forced into the low profit alternative. Most of the groups that started selling at the high price fell off the plateau and were unable to return to it. The other groups were rarely able to attain the uniform high price structure. Although the students were asked not to communicate, there were many audible comments concerning the cupidity, stupidity, and ancestry of the participants. After the students had made about fifteen to twenty price decisions, the experiment was terminated and the frequency of different price patterns was reported to the class. The experiment was then repeated, but the students in each group were allowed to communicate freely before each price decision. Under these conditions a majority of the groups succeeded in maintaining a uniform high price level for fourteen of the fifteen price decisions. But a substantial number were unable to collude or found that their agreements broke down after a few decisions.

These were not controlled experiments, and I make no claim that they shed any light on the behavior of oligopoly price makers. But they did give the students an intense experience that made the economic analysis of oligopoly behavior more meaningful. The students analyzed the experimental conditions and assessed the importance of demand elasticity, product substitution, communication, the cost function, and their motivations in explaining their role behavior. They saw collusive agreements break down and felt the frustration of not being able to raise a price when it was clearly in the interest of all firms in the industry to do so. After their experience, it was not difficult for them to understand the role of a price leader or the

significance of tacit collusion. The experiment and the discussions that followed provided a dramatic background for the analysis of antitrust policies in a learning context very different from the traditional authoritarian presentation of subject matter. An experience of this kind helps to break down inhibitions and communication blocks in the classroom. The entire course gained through increased interest in the subject matter and the students' involvement in the learning process.

Labor-Management Disputes

Role playing can be used to help students understand the attitudes and perceptions of individuals whose points of view differ substantially from their own. Students from upper- and middle-class families find it difficult to understand the basis for conflict between union and management. There is a tendency to believe that one party (usually the union) does not really understand the situation and that if only the facts could be clarified most disputes would disappear. I have used detailed case material to provide a context for student assumption of union and management roles in grievance negotiations. I distribute the case materials and assign the students, in groups of six to eight, to roles as members of a union or management committee. I ask each group to meet for not more than two hours to attempt to resolve the dispute in the background readings. They meet without supervision, and from reports I have received they seem to throw themselves into the assigned roles with enthusiasm.

At the next class meeting I ask for an oral report from each group. A representative of one of the committees volunteers to summarize the discussions and whatever partial agreement or definition of the issues the group arrived at. The volunteer is usually chagrined to discover that members of the opposing committee are unwilling to accept the summary and insist on presenting their own views of the negotiations. There are frequent disagreements over the details of settlements and on some occasions over whether any agreement was actually reached. When all the groups have reported but before any general discussion of the substantive issues, I ask the students to step out of their roles and indicate by secret ballot which side of the dispute they believe was right. When the votes are tallied there is some surprise expressed at the substantial vote for the union position. I then ask the students to indicate how they voted and whether they took a union or management role in the negotiations. On each occasion that I have used this exercise, a substantial fraction of the students who took union roles voted for the union position and almost without exception those who played management roles voted for management. The students learned about the process of negotiation and improved their understanding of the substantive issues in dispute. But the most significant impact of the experience on the students was their realization that the role they played affected their perceptions and evaluations of the situation.

Summary and Conclusions

The role-playing experiments I have described were all designed to accomplish learning through an experience that was at least in part emotional. They depended on self-learning and on active student participation in the learning process. The major concepts and ideas that were developed through the experiments were not complex, and in each case they could probably be set down in relatively few words. These experiments, and others like them, involved a substantial investment in student time that could have been used to present additional subject matter. My view that investments of this type are worthwhile is based on a judgment that our highest priority task is to increase our impact on students.

Role playing and related participative techniques appear to offer the possibility of deepening the learning that takes place and of increasing the acceptance of economics. Students seem to remember their role-playing experiences long after they leave the class, and my experience indicates that student involvement can improve our teaching through better comprehension, stronger interest, more self-learning, and improved student-teacher communication. My experiments suggest that participative techniques can be used effectively in economic education.

Macroeconomics Development Game

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Introduction

The activity was used in a lower-division course in economic principles (Economics 231 – Principles of Economics III), taught during the spring

Falero's report is from *Economic Education Experiences of Enterprising Teachers* 9 (1970–71), pp. 50–93.

quarter of 1970–71. The 124 students in the course were divided into thirty teams, each team being charged with representing the fiscal and monetary authority within a developing country, with primary dependence on a single export crop for foreign exchange earnings. The team was charged with making all fiscal and monetary decisions to achieve the goal of maximizing per capita real income, starting from an identical base. The students represented each of the eight colleges on campus, and each of the four classes.

The Game

The game is a modified IS-LM model, with a capital market, a labor market, a government bond market, and a foreign goods and capital market for each of twelve sectors. Each sector is determined separately; the twelve sectors are then aggregated, and the summed values are the economy-wide values. Thus, the students' policy, as well as the parameters within the sectors, may vary.

The capacity-output level of each sector is determined by a Cobb-Douglas-type production function, using capital, labor, educational spending, and social overhead spending as inputs, with cumulative technical progress. The production function has increasing returns.

The rate of price change is determined by the difference between the level of money income and the level of capacity available, with prices beginning to rise before the capacity level is reached. The money supply operates on the system with a one-period lag. That is, the demand for money for transactions purposes is determined by last period's income, with the residual between the supply of money and the transaction demand, called the speculative demand, determining the interest rate in this period.

Profits are calculated as a residual, being income after wage costs, capital costs, and taxes have been paid. The remaining variables are treated normally.

The Decisions of the Student

Students must make two sets of decisions: economy-wide decisions, which are essentially monetary policy decisions, and sector decisions, which affect each sector separately and are essentially fiscal decisions. There are eight economy-wide decisions and seven sets of twelve (one for each sector) sector decisons, making as many as ninety-two separate decisions, or as few as fifteen decisions if all sectors are treated identically. The decisions are presented in Table 1.

- **Economy-wide Decisions**

1. *Total spending on population control.* Here the students decide, if they wish, to reduce the rate of population growth in the society. If they do, then they must decide how much money to spend doing it, bearing in mind that it will take increasingly larger sums of money to bring about given de-

TABLE 1. Verbal Definition and FORTRAN Designation of Policy Parameters Controlled by Students

Economy-wide	Definitions	Sector
1.	Total of spending on population control (1.00 to the size of the government budget)	
2.	Portion of IMF quota to be monetized (.001–1.00)	
3.	Portion of foreign exchange holding to be monetized (.10–100.00)	
4.	Portion of capital inflow monetized (0.00–100.00)	
5.	Portion of deficit to be financed by printing money (0.00–1.00)	
6.	Flexible exchange rates (0.0 = fixed rates, 1.0 = flexible rates)	
7.	Open market operation (1.0 if the student wishes to use, 0.0 if not)	
8.	Size of operation (plus = purchase, minus = sale) Sales or purchases cannot exceed the available supply of bonds not currently owned by the central bank	
	Government spending by sector (0.0 to size of budget)	1(N)
	Marginal income tax rate (+ .00 to + .99)	2(N)
	Marginal tax on imports (+ .00 to + .99)	3(N)
	Marginal tax on exports (+ .00 to + .99)	4(N)
	Marginal tax on profits (+ .00 to + .99)	5(N)
	Government spending on education (0.00 to size of budget)	6(N)
	Minimum wage set by sector (0.00–10,000.00)	7(N)

clines in the rate of growth. If they spend $80,000, for instance, the population will grow at 4.227 percent. The limits of this value are given in Table 1.

2. *Portion of IMF quota to be monetized.* The IMF quota is the amount of gold, etc., this country has on deposit with the International Monetary Fund. This decision means that a given portion of this gold, etc., will be used as backing for the country's printing of money which will be allowed to circulate.

3. *Portion of foreign exchange holdings to be monetized.* This is the portion of the country's holdings of other currencies and gold, which is being used as backing for the money which will be allowed to be printed. For instance, for each $100 worth of gold the country has, it could issue $10 or $500 of money. Recall, however, that more money will tend to make prices rise, making imports cheaper and exports more expensive, causing the balance of trade to become negative and causing gold to flow out of the country.

4. *Portion of capital inflow monetized.* This is the portion of the capital which flowed into the country from abroad in the last period against which money will be printed. The same caution is made as in number 3 above.

5. *Portion of deficit to be financed by printing money.* This is the portion of the government deficit in the previous period which will be paid for by printing money. Whatever is left over here will be financed by issuing government bonds which people may or may not buy. The central bank has agreed to buy all the bonds the public does not buy. But, the government must pay interest on these bonds.

6. *Flexible exchange rates.* If students wish to have flexible exchange rates, they place 1.0 in these columns. If they wish to remain on fixed exchange rates they place a 0.0 in these columns.

7. *Open market operations.* If students wish to use open market operations to affect the supply of money they place 1.0 in these columns. If not, they place 0.0 and the Central Bank buys all bonds not bought by the public.

8. *Size of the operation.* Students put down the number of bonds and direction (plus sign signifies purchase; minus, sale) of the operation.

- **Sector Decisions**

1. *Government spending by sector.* For each sector the student must determine how much the government is going to spend on noneducation items, such as roads, dams, etc., which will affect the sector's capacity to produce output.

2. *Marginal income tax rate by sector.* For each sector the students must determine what percentage of income they want to collect in taxes.

3. *Marginal tax on imports by sector.* For each sector students must determine whether (and how much) to tax imported goods and services.

4. *Marginal tax on exports by sector.* For each sector students must determine whether (and how much) to tax the exports of the country. Although this is not allowed by the U.S. Constitution, there are many countries where export taxes are permitted.

5. *Marginal tax on profit for each sector.* For each sector students must determine whether (and how much) to tax profits. Recall that profits are to a large extent reinvested and increase the capacity to produce income in the next period.

6. *Government spending on education by sector.* For each sector students must determine how much is going to be spent on education. Education here is similar to technical training and affects the marginal product of the labor used in producing output.

7. *Minimum wage by sector.* For each sector students may set a minimum wage.

Operations of the Game

The students were required to submit each week a key-punched set of

thirteen computer cards with their decisions. Students were aware that any key-punching errors made would not be corrected, hence few were made. Each group of students met at a convenient time outside of class to discuss strategy. The instructor was available during much of this time to consult with the students, either in person or by phone. About thirty hours were used in this manner.

After the cards were turned in, the computer program was run and the results distributed to the students at the next class period. Discussions were then held during part of this period concerning the previous decisions and their effect.

The Results

The results obtained from this game can be broken down into three areas. First, the level of understanding of the students with regard to the implication of policy measures was revealed by the computer printouts. They showed that real per capita income was increased to several times the original level.

The second area is that of interest. Many additional hours of work were put in by the teams in preparing for their strategy sessions, including making assignments within their own group to read and be prepared to analyze some specific points in the text. The grading of the game was accomplished by each team member ranking all other members of the team and assigning a percentage of the total points (this number was unknown to them) to each member. Hence, the team members had to impress their colleagues and not the instructor.

The third area was in the average grade on tests (excluding the game points). This class of 124 students did, on the average, 8 percent better on each exam than did any other large section I have ever taught. Interestingly, there were 50 percent fewer failures in this class than in my previous large classes and nearly 30 percent more A's and B's. The total effect of the game grade was to raise student grades one-third of one letter at a maximum and to reduce grades by one-third of one letter at a minimum. Along this same line, 85 percent of the students indicated a desire to take another economics course, compared with 75 percent for other large sections.

In comparing test scores with game results, two tests were used. First, the rank of the average test scores for each team of students was correlated with the rank of the team's game results. This yielded a significant rank correlation coefficient (Spearman's) of .761. Second, and even more significant, was the correlation of individual students' grades with the average of the ranking of their teammates. This yielded a simple r of .875. Both measures indicate that there is high correlation between performance in the game and performance on the exams. Of course, it should be noted that both of these measures are closely related to the level of intelligence.

Money and Banking Forever

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Introduction

In the winter of 1974, I found myself in a new location, among unfamiliar faces, and about to start my teaching career. Teaching principles of economics while in graduate school and soliciting the advice of seasoned professors had not prepared me for the lecturing doldrums which occurred halfway through my first course on money and banking. Students began asking me what monetary theory had to do with anything in the "real world," and I began asking myself what my previous objection had been to injecting a more institutional emphasis in this course.

In retrospect, a theoretical as opposed to an institutional emphasis was not the error. What was missing in my course was some display of applicability or "relevance," some way of making the St. Louis multiplier exciting to the average college student, and some way of making money and banking a memorable educational experience—one that would stay with students after graduation and be of benefit to them in their day-to-day lives. The task of designing a course that fulfills these goals and at the same time teaches economic theory was indeed a challenge.

The problem is that the material contained in most money and banking courses can be boring to many students, particularly those not inclined to appreciate the esthetic qualities of T-accounts or the mathematical elegance of simultaneous equation solutions. One really bad lecture, with the time and potential for others, just adds to the tedium unless students see the necessity for the drier aspects of theory. The Federal Open Market Committee (FOMC) simulation, as an integral part of the course, is one way of ensuring that students see the necessity of theory and the exciting role it plays in policy-making situations.

The FOMC Simulation

Several factors are important when analyzing the effect of the FOMC simulation on student learning. First, the FOMC simulation is one-quarter

Bartlett's report is from *Economic Education Experiences of Enterprising Teachers* 16 (1977–78), pp. 73–78.

of the course and of the student's grade. Second, the simulation represents a second generation in simulation design. Third, the simulation reinforces and draws upon what students learn in the rest of the course. The effect of the FOMC simulation on student learning is examined with both soft and hard statistical evidence.

Students were required to purchase two books for the course: Simpson's *Money and Economic Analysis* and Bartlett and Amsler's *A Wall Street Journal Journal*. The textbook is theoretically oriented. The *WSJ Journal* serves as a workbook and analytical guide for the *Wall Street Journal*, to which students are required to subscribe.

The course is outlined in a very traditional manner except that after examining the GNP accounts briefly, students are introduced to a very simple Keynesian model. The early introduction of a macro model is done for two reasons. First, intermediate macro is a prerequisite for money and banking. To maintain continuity, it is important to establish the link between macroeconomics and monetary theory early in the course. Second, the early use of even a very simple macro model is a prerequisite for the FOMC simulation. Students need some analytical framework to start with and to build upon. Throughout the course the emphasis in lectures is theoretical.

Students are tested on this material over the course of the semester with minitests. These are forty-minute tests on material discussed in the book and developed in class. Students are allowed to drop their lowest grade of five on the minitest. At the end of the semester, students are tested again but only over the specific material on the minitest. Thus, their final exam is a modification of questions previously asked. This traditional approach to the material and testing of the students' understanding of it accounts for 50 percent of their grade.

The remaining portion of a student's grade is determined either directly or indirectly by the FOMC simulation. There are four or five FOMC simulations throughout the semester, depending on the schedule. Students are required to participate in four. They are graded on five things: demeanor, accuracy of facts, plausibility of analysis, adequacy of policy suggestions, and responses. A simple grading sheet facilitates the grading procedure. At the end of the semester each student must write a position paper which mirrors much of the simulation, giving students a second chance to learn the material. It is premature to discuss this aspect of the course at this time, and an elaboration on these experiences will follow in due course.

The Design of the FOMC Simulation

As can be surmised from the time alloted the simulation and the effort required for a position paper, the FOMC simulation plays a key role in affecting student learning. In essence it serves as a bridge between the economic theory they are learning in class and from personal study and the use of theory in the "real world." Unlike most simulations used in the teaching of economics, the FOMC simulation is synergistic; that is, it is specifi-

cally designed to incorporate three different simulation techniques and to build upon the cumulative nature of the learning process as outlined by Bloom in his taxonomy of educational objectives. A rationale for this design is developed after reviewing the inconclusive findings of traditional simulations and adapting Bloom's taxonomy to fit the nuances of economic theory.

I spent four years developing this approach, and much of my work was supported by the Denison Simulation Center funded by the Lilly Endowment, Incorporated. The center provided assistants, released time, and travel money. The work was presented in various stages of development at several conferences and has been published. In addition, a former student, Christine E. Amsler, funded by the center, worked closely with me on these projects. Denison University has been very supportive of my research efforts in developing effective teaching techniques.

Goals of the FOMC Simulation

The overall purpose of the FOMC simulation is to reinforce students' understanding of monetary theory and financial institutions and to illustrate how monetary policy in the United States is made and executed. In specific terms, the three main objectives of the FOMC simulation are to:

- Describe the purposes and functions of the Federal Reserve system and to familiarize students with basic economic information available in public media;
- Illustrate the role macroeconomic theory plays in policymaking and to give students an opportunity to use the models they learned in class;
- Have students apply their fundamental understanding of facts and models to judge for themselves the relative merits of policy actions reported in the press.

Each of these objectives parallels a stage in the learning process and an aspect of the policymaking environment as discussed in the rationale. The FOMC is synergistic in that these objectives are met by simultaneously using, the simulation techniques of case study, model building, and role playing

The Classroom Experience of the FOMC Simulation

In brief, the FOMC simulation is an enactment of the FOMC meetings actually held in Washington. Eleven to forty-four students can participate at each of the triweekly meetings. Each session lasts for an hour. Students prepare for the simulation by clipping articles from the most recent issues of the *Wall Street Journal*. The workbook helps them to recognize which articles are important and provides them with tables for recording information as well as with charts on which to plot the entries so that trends can be

observed and followed. Space is provided for pasting the articles in for future reference in the simulation. Thus, all the students have up-to-date and identical pieces of information. The common ground facilitates discussion.

Students also prepare for the simulation by researching their assigned roles as committee or staff members. They analyze the facts collected from the *Journal* within the theoretical frameworks learned in class and from the political perspective of the committee member. As the course progresses the analytical preparation is expected to become more sophisticated.

I prepared for class by updating my own *WSJ Journal* and by filling out the grading sheets. I paid particular attention to releases of the chairman of the Federal Reserve Board, since that was my role.

At each meeting, different members of the committee are responsible for different sectors of the economy, as outlined in the *WSJ Journal*. Members of the committee or their staffs must brief the entire committee on the current economic situation within their sector, give their analysis of these developments, predict future trends, and suggest policy courses. When all ten of the three- to five-minute presentations are complete, discussion takes place until a consensus for policy action is reached. The views of the chairman are always made known.

The atmosphere for these meetings is set in several ways. First, the room is set up for a conference. If a large conference table is not available, members of the FOMC sit in an inner ring of chairs provided with name plates. Staff members are seated in an outer circle near their assigned committee member, who acts as the group's head in large classes. The mood of gravity is further enhanced by requiring students to wear businesslike attire, to address the committee formally from a podium, and to stay within assigned roles.

A Final Effort

The debate between particular committee members, in keeping with their assigned roles, can be time consuming, and not all students are permitted to engage in the discussion. Thus, at the end of the semester after experiencing at least four FOMC simulations, students must write a position paper of no more than fifteen pages. The paper is divided into three sections which parallel the simulation presentations. Unlike their earlier presentations, however, students are responsible for every sector in the economy. Information for the first section, which reviews the current economic situation, is taken from the *WSJ Journal*. Their reviews focus on the economic events of the last quarter as compared to the same quarter of the previous year. In the next section of the paper, this information is analyzed within a macroeconomic model. The degree of difficulty or sophistication in their analysis is limited by the five pages allotted for this section. Finally, policy recommendations based upon their analyses are made in the last section. Here students are encouraged to consider all the alternatives and state why

some are out of the question. So, the position paper offers students a final chance to draw the course together, to bridge the gap between fact and theory, and to make economics come alive.

Course Summary

Four years of work went into designing a course for the fall of 1977. Half of the course was in the traditional lecture format, and the other half rested heavily upon the FOMC simulations. Students were always given two opportunities to learn the material, allowed to drop one minitest and FOMC simulation, and given several opportunities, verbally and in writing, to express what they had learned and apply it.

The evidence shows that the simulation was crucial to answering the "relevance" question, creating excitement for the material, and providing students with an economic framework within which to put the facts reported on TV and radio news programs, news magazines, and the daily newspapers after they leave Denison.

Evaluation

There is ample evidence to substantiate the claim that money and banking as it is currently taught at Denison University meets the stated objectives of the course. In addition, there is ample evidence that the FOMC simulation is effective in attaining its specific goals and thus fulfills its role within the course structure.

A rigorous experiment was conducted during the first semesters of 1976–77 and 1977–78. Both experiments used a pre- and post-test procedure to measure student learning over the semester. The test was designed to measure student understanding of facts, theory, and policy issues surrounding the making of monetary policy. The more traditional TUCE and TUE tests are inappropriate instruments for advanced undergraduate courses and particularly for money and banking courses. The evaluation of the FOMC simulation, which controlled for such factors as age, sex, major, etc., showed that the simulation was an important determinant of student understanding. The simulation's greatest impact was on theoretical issues. The evaluation also showed that students follow Bloom's taxonomy and do move from very basic cognitive levels, such as knowing facts and definitions, to understanding interrelationships among variables. Comprehension of facts and relationships is a prerequisite for making reasonable policy suggestions and judging the appropriateness of current policy actions.

In terms of attitudinal changes, the 1977–78 experiment, which pooled the data from the previous year, shows that the overall course rating is a significant explanatory variable. This point needs elaboration. In this experiment the students' ratings of the course constitute a measure of how well they felt the course met its objectives and how well the lectures and simulation meshed to meet these objectives. The higher students rated the course,

the more their interest in the material increased over the term. This can be interpreted to mean that the simulation was successful in bridging the gap between practice and theory, and thus that the material displays applicability.

Softer evidence comes from several sources. First, the student position papers at the end of the course have demonstrated an amazing grasp of the current economic situation and an ability on the part of most students to analyze it with some sophistication. Also, their policy suggestions are well thought out and justified, rather than being a display of emotional or political rhetoric. Students themselves admit that they learned a lot in the simulations and in writing the papers. Every year there is a waiting list to get into one of the two forty-student sections. Finally, the grapevine is very effective in any undergraduate institution. This well of information says that the course is a lot of work but worth the effort.

Summary

The lecturing doldrums experienced over four years ago have given way to a well-structured course that attempts to demonstrate the applicability of economic theory to the current economic situation. The vehicle used to transport students through economic theory is the anticipation of, the excitement of, and the satisfaction generated by the FOMC simulation.

This simulation is unique in the sense that it is synergistic and is therefore more effective in attaining its goals. Other synergistic simulations can be designed to fit a variety of economics courses. The Council of Economic Advisers is an example of another synergistic simulation. It is designed with the same objectives and format as the FOMC simulation, except that the focus is on fiscal policy. Regardless of the focus, however, the synergistic approach to simulation in economics is a valuable complementary technique to the traditional lecture.